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Fountains - Lights

ELECTRIC FOUNTAIN



COLORED
ILLUMINATION
OF
WATER

GENERAL ELECTRIC COMPANY
SCHENECTADY, N. Y.

SPECTACULAR COLORED WATER ILLUMINATION

Electric Fountain

By

R. G. Bellezza

That a method whereby existing ornamental fountains in cities and villages may be equipped with illuminating apparatus that will make them objects of interest and admiration to the people for miles around, at a cost well within the means of even small communities, may not, at first thought, seem a matter of particular interest to central stations.

Yet it is well established that whatever calls the attention of the public to the utility of electricity for promoting comfort, efficiency or beauty means in the long run a very important addition to the central station load; in other words, it advertises the electrical idea in a very practical and worth-while way.

It is for this reason that the plan successfully worked out and put into operation for the illumination of the Schute fountain at Lynn, Massachusetts, -- a fountain installed some time ago but only recently rejuvenated and electrified up-to-date -- is of interest to the industry in general. It has paved the way for any number of communities to install the same illuminating arrangements in their fountains for, as stated, the work can be done for a very small outlay, whereas the cost formerly put them beyond consideration in most places.

The method of illuminating fountains usually followed has been to throw beams of light from arc lamps or floodlights

installed in a glass-enclosed room beneath, upon the jets, colors being provided by the use of glass color screens over the lamps, which were changed by hand or mechanically.

In the Lynn fountain, the expensive expedient of an underground chamber has been avoided by raising the piping 28 inches above the floor of the fountain and placing floodlights made of waterproof material and sealed so as to be water tight, each equipped with a colored glass door, beneath each jet and ring. Both the jets and the lights are operated manually from a small building a few feet from the fountain. Automatic control can be arranged if desired, or a combination of manual and automatic effected.

The battery is composed of 30 vari-colored floodlights, consisting of five groups of six each, each group having the colors red, white, blue, green and amber. A 500-watt lamp is used in all units in the average load while the fountain is in operation is 10 kw., which indicates the low cost of the illumination.

The fountain proper is composed of five rings four on the outside and one in the center. In the center of each ring is a nozzle which throws a solid stream of water into the air to be a height of about 25 feet. There is also a small ring inside the large center ring, as well as a whirling spray. The outer rings are all under one control, while the nozzles, the center ring and

the center spout and spray each have a separate control. In this way the height and spread of the water from each section may be controlled by the operator.

Through a window in the control house, the operator can observe the results of the combination of colors and water. Each light is operated by a snap switch, with the color it controls indicated, and an infinite variety of combinations may be had by a proper manipulation of the switches.

The water is controlled by quick-acting valves on the wall of the control house. One man, seated, is able to run the complete display with ease, or it may be operated automatically by means of a flasher and relays.

The Pool and Fountain

The pool proper (Figure 1), (the outer basin is referred to throughout this description as the pool, while the center portion containing the floodlights is designated as the fountain), is about 70 feet in diameter. It is nine inches deep at its outer edge and sloped down to three feet deep below the ground level at the base of the fountain proper. The distance from the outer edge of the pool to the base of the slope is 21 feet. The slope for the drain off from the fountain is approximately 45 degrees up to the floor of the fountain, which is on about the same level as the ground. These dimensions are shown in the drawing.

The fountain is 18 feet in diameter and is surrounded by a wall about four feet high, with jagged points protruding approximately a foot higher, the wall being two feet thick. Small holes are left in the lower part for the drain off to the pool. The floor

of the fountain is covered with concrete, the center being about six inches above the circumference. The entire pool, fountain floor and walls are wholly or partially concrete. The drain off for the pool is a perforated pipe extending six inches above the floor of the pool at the base of the fountain, and there is an overflow outlet in the nine-inch wall at the outer edge of the pool. This outlet can be so regulated as to keep the pool full of water at all times.

Water Installation

The layout consists of a set of four rings (Figure 2), each 25 inches in diameter from center to center of the brass piping which is two inches in diameter, brass being used as the best material for this purpose. These rings are equally spaced and centered on the circumference of a circle whose radius is 66 inches, and all are controlled by the same valve.

In the center is a ring of the same radius as the outer ones, but separately controlled. Each of these rings has holes about one-sixteenth of an inch in diameter in the center of the top of the pipe, about two inches apart on the circumference, which give a spray effect to the water (Figure 3). In the center of each outer ring, as well as in the center ring, there is a spout extending about a foot above the rings with a three-eighths inch nozzle. The center nozzle is independently controlled, while the outer nozzles are all under one control. With the center ring there is also a separately controlled spray which may be replaced by a whirling spray if desired.

of the ... the ...
six inches ...
floor and walls ...
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The ...
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which is ...
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The outer rings are all fed from the center by a two and one-half inch main which goes back to the control house. The nozzles are likewise fed from the center by a two inch main, while the center nozzle spray and center ring are each separately piped to the control house through one and one-half inch mains. All the feeder pipes are bent to the level of the floor before they go through the well of the fountain and follow the contour of the slope and pool on the surface, entering the ground through the outer wall of the pool and then up into the header in the control house. The piping is covered over from its exit through the wall to its entrance in the ground with a concrete box which protects the pipes from breakage.

Electric Installation

Each ring, including the center ones, has a battery of six General Electric Company floodlights, Type L-1 special, placed under it, the piping being raised, as stated, 28 inches above the floor of the fountain. Each flood light is of a certain color, the color being obtained by means of a colored door glass, the different colors being blown in the heat-resisting glass so as to be permanent.

A floodlight is placed under the center of each ring, while five others are installed as close to the center one as possible, spaced equally around the ring. Each group contains the colors red, green, blue, amber and white, there being a different color in the center of each group. As previously stated, each

the other three are all fed from the center by a two and one-half inch main which runs to the control house.

The other three are all fed from the center by a two inch main.

While the water is being pumped out of the well, the water is being pumped out of the well.

It is in the center of the well that the water is being pumped out of the well.

All the water is being pumped out of the well.

That is, the water is being pumped out of the well.

of the water is being pumped out of the well.

The water is being pumped out of the well.

control house.

the well is being pumped out of the well.

WATER PUMPING

That is, the water is being pumped out of the well.

General electric company, type T-1 special, placed

under it the pump is being pumped out of the well.

It is in the center of the well that the water is being pumped out of the well.

the color of the water is being pumped out of the well.

different colors are being pumped out of the well.

to be pumped out of the well.

A pump is being pumped out of the well.

five colors are being pumped out of the well.

around a central pump is being pumped out of the well.

red, green, blue, and white, being pumped out of the well.

color is the water is being pumped out of the well.

unit burns a 500-watt lamp.

Silvered reflectors are used with the units in the center of the rings and with the blue and green units, thirteen in all. Aluminum reflectors are used with the others, a total of seventeen.

The units should never be lighted unless water is falling on the doors, so as to prevent the glass from breaking. In no case should water be allowed to fall on the glass doors when they are hot.

Control

Both jets and lights are operated from the control house, close by the fountain. All pipes and wire conduits lead into the control house through the floor. The pipes are run into a six-inch leader, with a quick-acting, long handled valve in each main. This leader is connected directly to the lead in main from the city supply by a globe valve. The wires come into a control box with fuses in each circuit, and each lamp is connected through and controlled by a button on top of the control box. These buttons are arranged in the same position on the control board as the floodlights are placed in the fountain. Beneath each button is a card indicating the color it controls. The control is so flexible that any combination of colors may be obtained in each group.

The fountain described is manually controlled, but automatic control may be substituted if desired by the use of rotary switches or a combination of manual and automatic may be employed, making it possible to give especially novel and beautiful effects in infinite variety on special occasions, limited only by the imagina-

tion of the operator.

Approximate Cost

Obviously, the estimation of the cost of illuminating a fountain in this manner can at best be only approximate, the price of material and labor varying, and the distance between the fountain and the control house effecting it to some extent. The following figures are general but indicate the comparatively small amount required. They are, of course, exclusive of the cost of the fountain itself, walls, overflow basin and drains.

	<u>Labor</u>	<u>Materials</u>	<u>Total</u>
Electrical work.....	\$ 329.54	\$ 149.10	\$ 478.64
Piping.....	307.72	170.64	478.36
Erection work.....	257.80	132.44	390.24
Lead-in from water main approximately 50 feet. (This item would of course vary in different installations.....	350.00		350.00
Cost of brass piping.....		250.00	250.00
Cost of floodlights with colored glass door.....		1915.00	1915.00
Cost of lamps Type C Mazda.....		178.25	178.25
	<u>\$1245.06</u>	<u>\$2795.93</u>	<u>\$4040.99</u>

Thus, for the sum of, say, from \$4,000 to \$4,500, a city which already has a fountain can turn it into a thing of such surpassing beauty that it will attract attention and admiration from far and wide. When the Lynn fountain was first operated after having been equipped with the lighting and control equipment described above, crowds of upwards of 15,000 made up not of residents of Lynn but of other cities in that vicinity, flocked to the Common to see it.

Statement of Work

On October 1, 1964, the Department of the Interior, Bureau of Land Management, initiated a study of the land use patterns in the area of the proposed new town of ... The purpose of this study was to determine the land use patterns in the area of the proposed new town of ... and to determine the land use patterns in the area of the proposed new town of ... The following is a summary of the study results:

Land Use		Area (Acres)	
Agriculture	Wheat	1,234	1,234
	Barley	567	567
Forest	Conifer	3,456	3,456
	Deciduous	2,345	2,345
Urban	Residential	1,567	1,567
	Commercial	789	789
Open Space	Parkland	456	456
	Wildland	1,234	1,234
Total		12,345	12,345

The total area of the study is 12,345 acres.

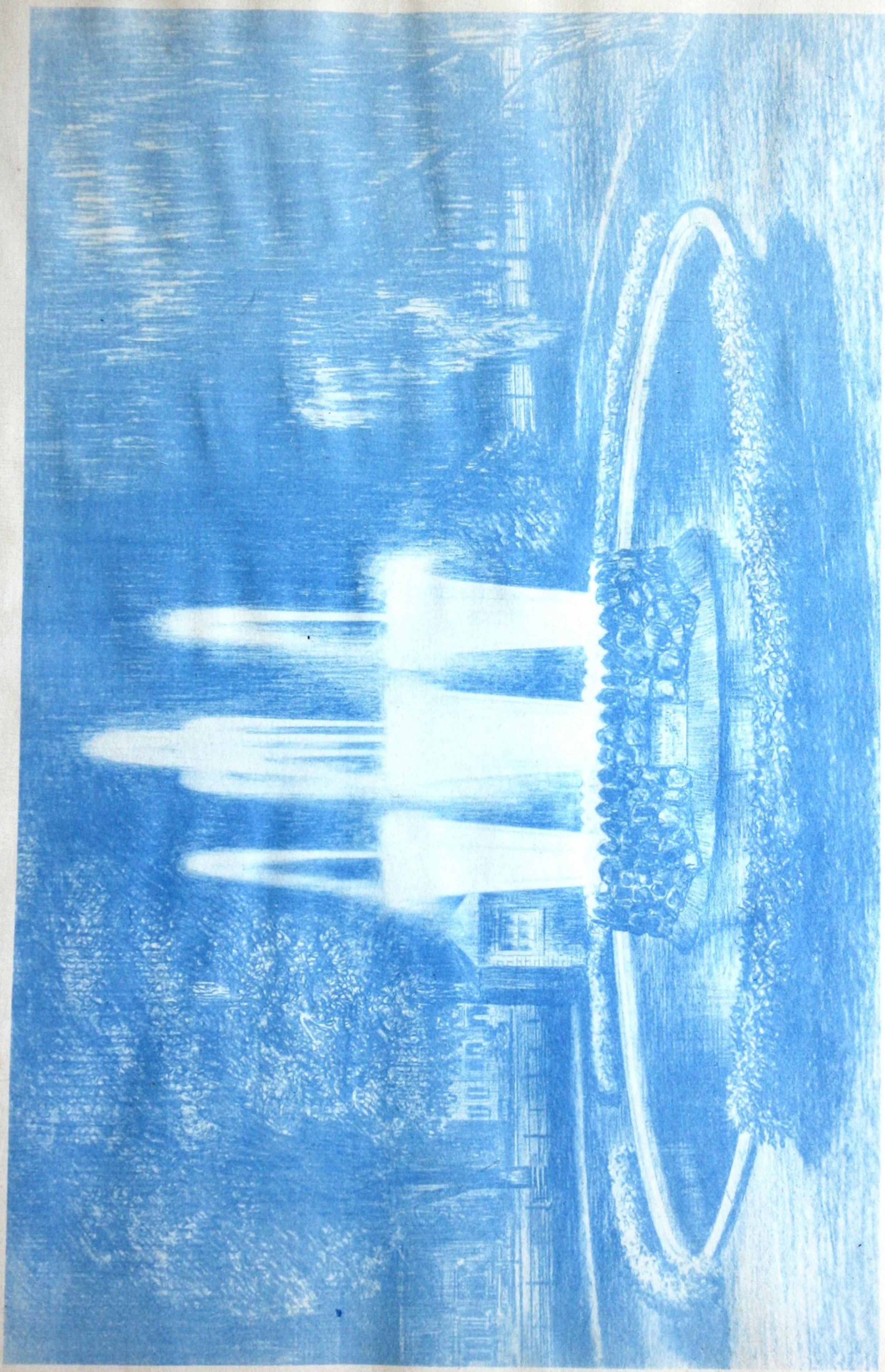
The study results show that the land use patterns in the area of the proposed new town of ... are primarily agricultural and forested. The agricultural land is primarily used for growing wheat and barley. The forested land is primarily used for growing conifer and deciduous trees. The urban land is primarily used for residential and commercial purposes. The open space land is primarily used for parkland and wildland. The study results show that the land use patterns in the area of the proposed new town of ... are primarily agricultural and forested.

It is a fair statement to say that the beauty of this fountain cannot be described in words. No idea of the marvelous changes, from jets turned down and lighted with amber light until the fountain looks like a waving field of ripening wheat, to a crimson pyramid that looks for all the world like a huge bonfire, and with numberless combinations of colors and effects between can not be adequately described. Only by an actual view of the fountain in operation can its beauties and possibilities be realized.

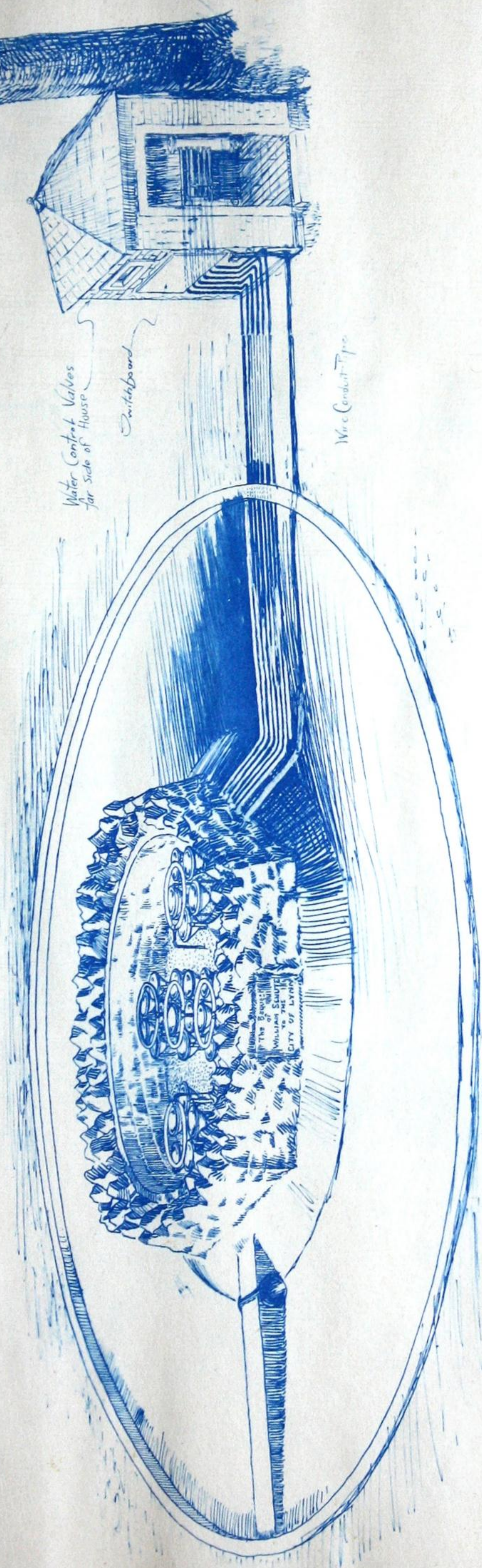
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271970 DRAWING REPRESENTING ILLUMINATION OF FOUNTAIN AT NIGHT
LYNN COMMON, LYNN, MASS.
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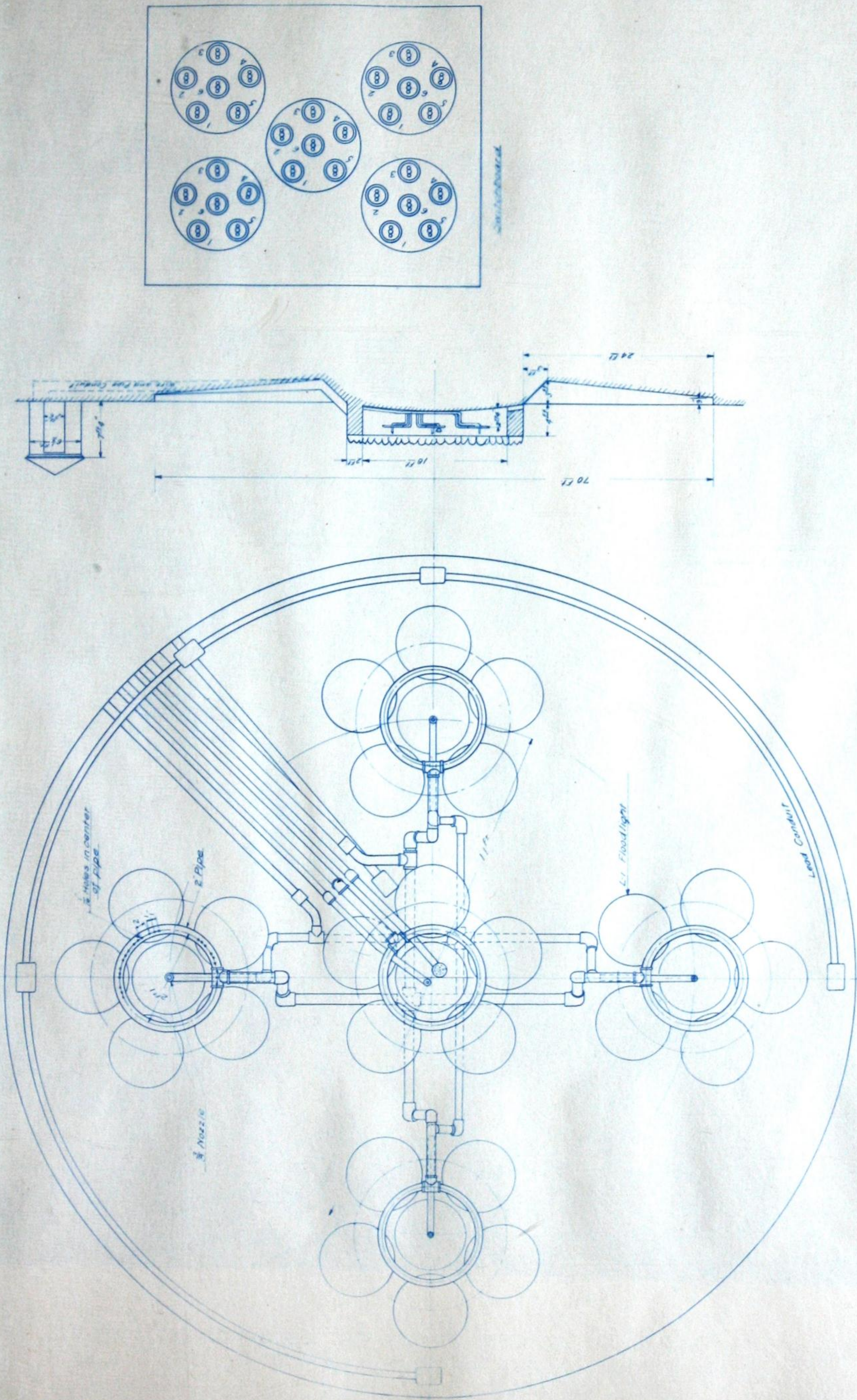


Scheme of Illumination of Schute Fountain
 by C.A.B. Halvorson Jr.
 Drawn by E. H. H. H.



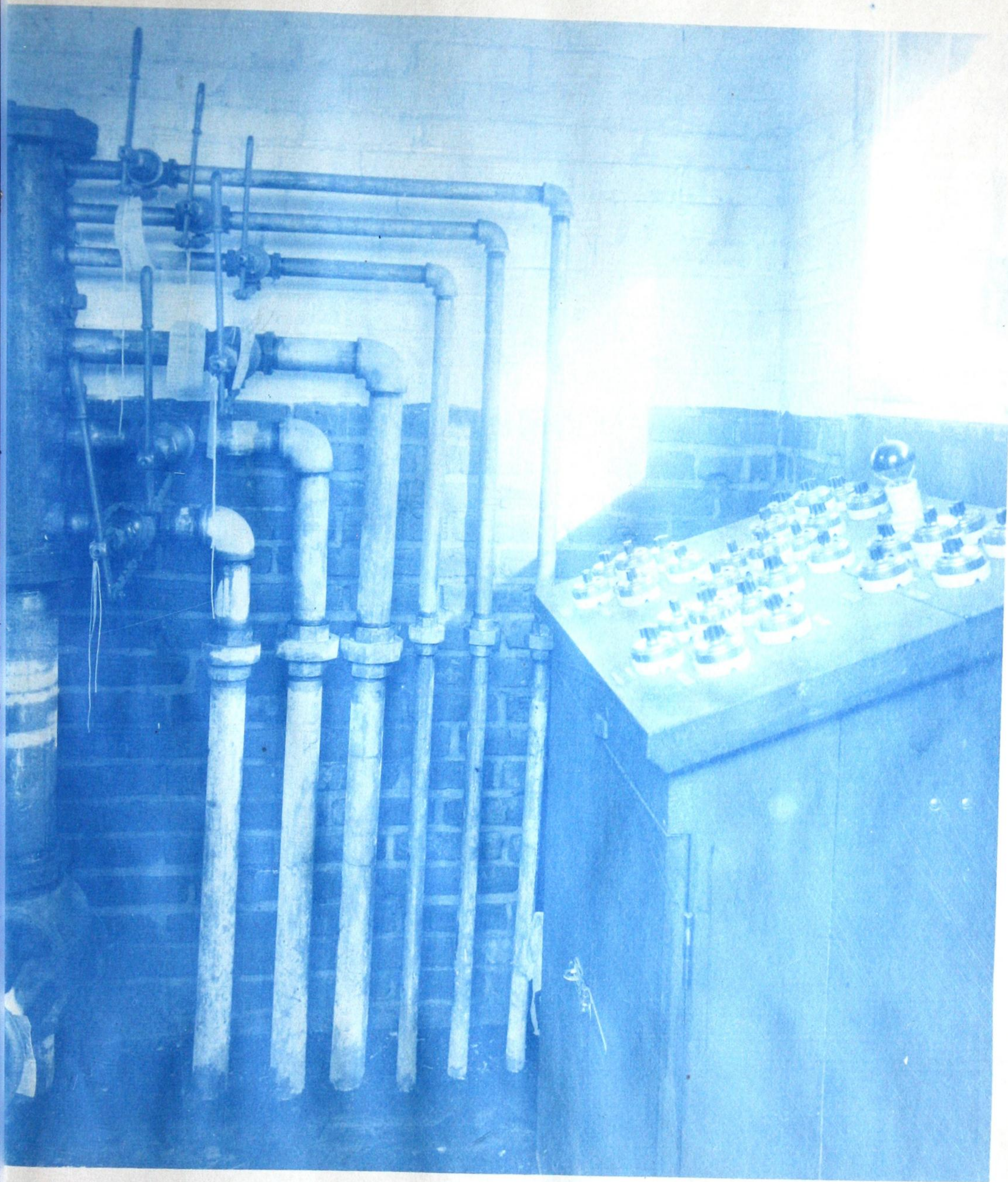
272009 SKETCH SHOWING ARRANGEMENT OF LUMINARIES AND CONTROLS FOR
 SCHUTE FOUNTAIN, LYNN COMMON, LYNN MASS.

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272010 DRAWING SHOWING PIPING AND WIRING CONNECTIONS FOR SCHUTE
ILLUMINATED FOUNTAIN, LYNN COMMON, LYNN MASS.
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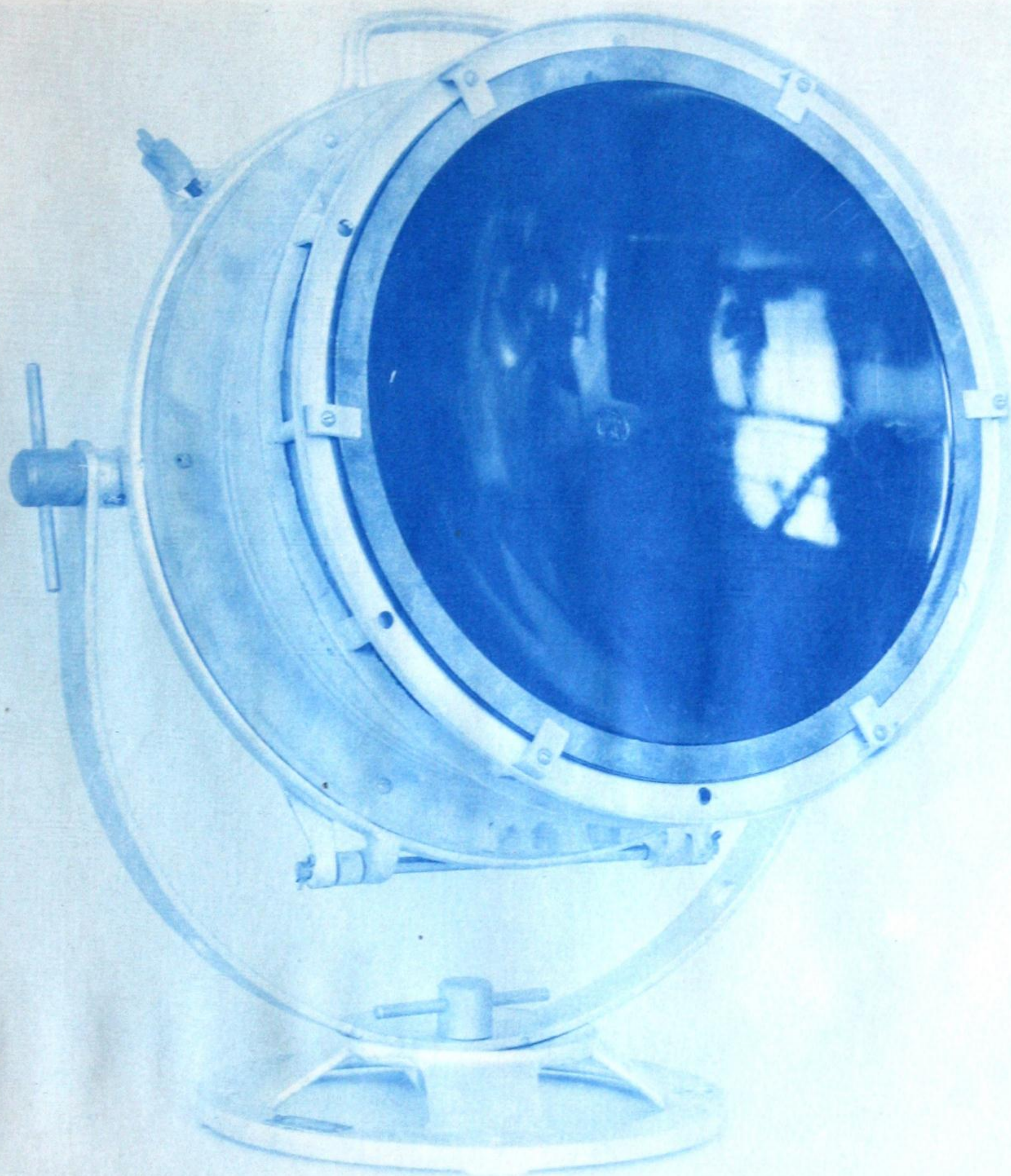
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272345 WATER VALVE CONTROL AND SWITCHES FOR CONTROLLING UNITS IN
ELECTRIC FOUNTAIN, LYNN COMMON, LYNN, MASS.

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FORM L-1-Y FLOODLIGHTS FOR ELECTRIC FOUNTAIN.

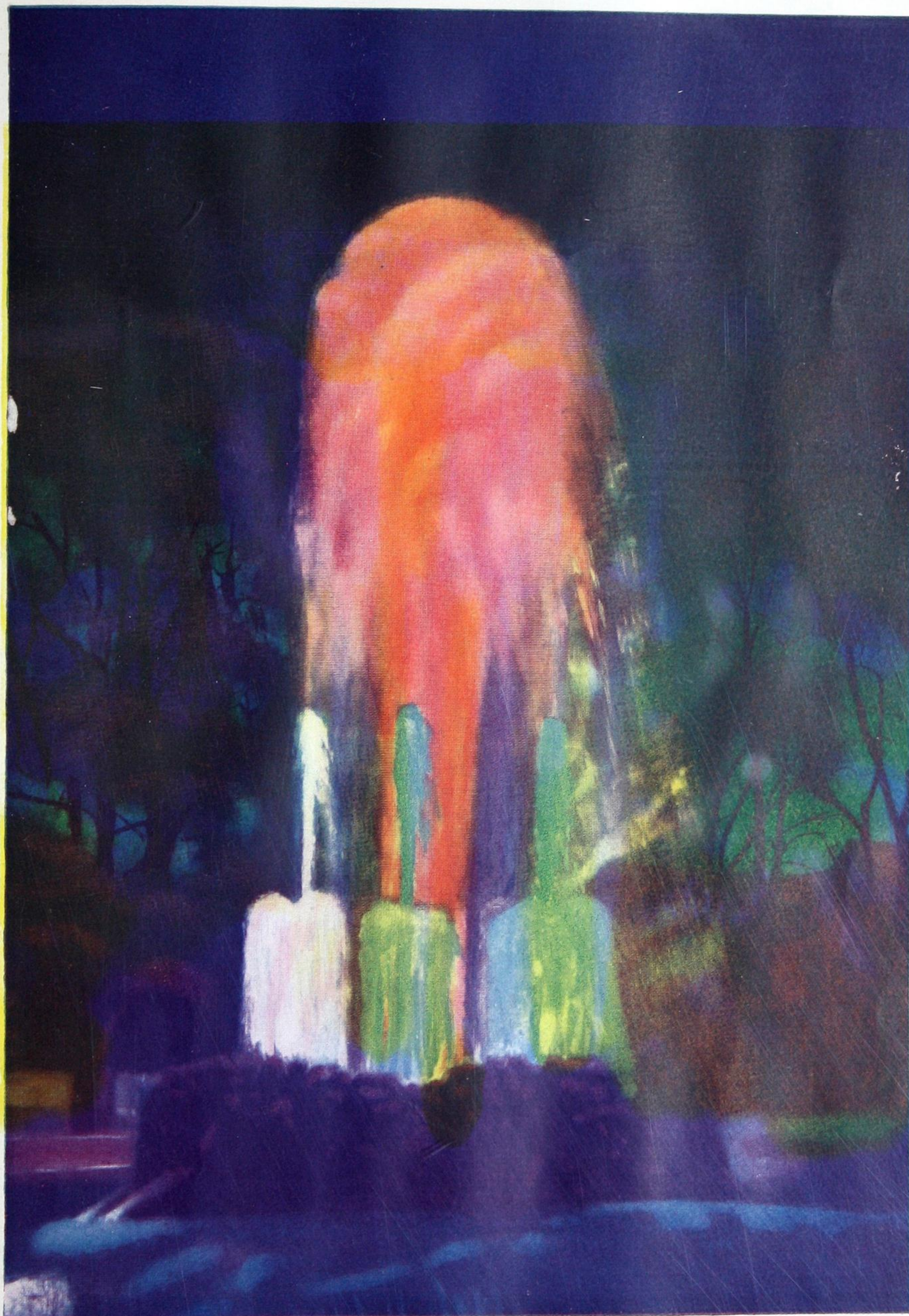
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ELECTRIC FOUNTAIN ON THE CITY COMMON, LYNN, MASS.,
ILLUMINATED AT NIGHT



ANOTHER OF THE NUMBERLESS COMBINATIONS OF WATER
EFFECTS AND COLORS IN THE LYNN FOUNTAIN



273155

FORM L-1-Y FLOODLIGHTS FOR ELECTRIC FOUNTAIN.
APPROX. 1/4 SIZE

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ELECTRIC FOUNTAIN, LYNN COMMON, LYNN, MASS. SHOWING DIFFERENT
HEIGHTS AND SIZES OF WATER SPRAYS.

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272347 ELECTRIC FOUNTAIN, LYNN COMMON, LYNN, MASS. SHOWING DIFFERENT
HEIGHTS AND SIZES OF WATER SPRAYS

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HEIGHTS AND SIZES OF WATER SPRAYS

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HEIGHTS AND SIZES OF WATER SPRAYS.

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